REMARKS

Applicants appreciate the Examiner's thorough examination of the subject application and request reconsideration of the subject application based on the foregoing amendments and the following remarks.

Claims 1-6, 14-19 and 27-46 are pending in the subject application. Claims 35 and 45 are canceled.

Claims 32, 33 and 45 are withdrawn from consideration as the result of an Examiner's restriction requirement. In view of the Examiner's restriction requirement, Applicants reserve the right to present the above-identified withdrawn claims in a divisional application.

Because Applicants believe that the subject application is in a condition for allowance, Applicants canceled one of the withdrawn claims, claim 45, to advance prosecution. As to the other withdrawn claims, claims 32 and 33, each of these claims depends directly from claim 1, which claim is believed to be allowable. Thus, Applicants respectfully request that the Examiner rejoin claims 32 and 33 so that these claims also can thus be passed to issue.

Claims 14-19, 41 and 43 are acknowledged as being allowable by the Examiner.

Claims 1-7, 27-31, 34-40, 42, 44 and 46 stand rejected under 35 U.S.C. §103and/ or 35 U.S.C. §112, second paragraph.

Although Applicants believe that pending claims 1 and 44 are distinguishable from the cited art, each of these claims was amended in the interests of advancing prosecution so as to further claim the characteristics of the hardened bonding agent such as that set forth in claim 14. The amendments to the claims are supported by the originally filed disclosure.

35 U.S.C. §112, SECOND PARAGRAPH REJECTIONS

Claim 35 stands rejected under 35 U.S.C. §112 on the grounds that there are antecedent basis, indefiniteness and/or vagueness concerns with the identified claims.

As provided above, claim 35 was canceled.

Thus, Applicants believe that the within rejection need not be addressed further herein.

35 U.S.C. §103 REJECTIONS

Claims 1-7, 27-31, 34-40, 42, 44 and 46 stand rejected under 35 U.S.C. §103 as being unpatentable over the cited are for the reasons provided on pages 2-8 of the above-referenced Office Action. Applicants respectfully traverse. Because claims were amended in the foregoing amendment, the following discussion refers to the language of the amended claim(s). However, only those amended features specifically relied on in the following discussion shall be considered as being made to overcome the prior art reference. The following addresses the specific rejections provided in the above-referenced Office Action.

CLAIMS 1-6

Claims 1-6 stand rejected as being unpatentable over Honjo [JP 2-093683; "Honjo(1)"] for the reasons provided on page 3 of the above referenced Office Action. Claim 1 also stands rejected as being unpatentable over Honjo [JP 1-0251013; "Honjo(2)"] for the reasons provided on page 4 of the above referenced Office Action. Applicants respectfully traverse.

Applicants claim, claim 1, a display device that includes plural display panels, adjoining display panels being connected with each other by means of a bonding agent, so as to have a single display screen. At least one edge portion of an end surface of a connected part of each display panel is chamfered and the bonding agent has a flexural modulus of elasticity of not more than 4,000 kgf /cm^2 after being hardened.

The display device of the present invention provides a large screen display with excellent visibility which has the connecting parts of display panels being made sufficiently invisible, by preventing cracks in the connecting parts from scattering light. To achieve this, a display in accordance with the present invention has major features that *the internal stress generated by the curing shrinkage of a bonding agent is dispersed, and at least one edge portion of each connecting end face of the display panels is chamfered to prevent cracks from developing in connecting parts (edge portions)*. In other words, in the present invention, the connecting end faces of the display panels are chamfered in order to disperse the internal stress generated by the curing shrinkage of the bonding agent.

In contrast to the present invention, none of the various references cited by the Examiner pays attention at all to the internal stress generated by the curing shrinkage of the bonding agent (the references even fail to recognize problems caused by the bonding agent). Specifically, Honjo (1) mentions nothing about a bonding agent and Honjo (2) mentions a "transparent bonding agent" and describes a property of the bonding agent: *the transparent bonding agent has an almost equal index of refraction to the glass electrode substrate*. See page 2, the lower right

column, lines 9 to 11. Honjo (2), however, does not specifically describe its properties other than the "index of refraction.

In sum, none of the cited references considers at all the problems raised by the curing shrinkage of the bonding agent. That is, none of the cited references address at all the internal stress caused by the curing shrinkage of the bonding agent, the cracks developing in the connecting parts of the display panels experiencing internal stress, or the annoyingly visible connecting parts of the display panels caused by cracks and resultant poor visibility. Therefore, none of the cited references identifies the issue that the internal stress generated by the curing shrinkage of a bonding agent needs to be dispersed to provide a large screen display with excellent visibility which has the connecting parts of display panels being made sufficiently invisible.

It appears from the above-referenced Office Action that it is being asserted that the chamfering of the connecting end faces of display panels is a common technique. However, the cited references all fail to disclose a technical concept to disperse internal stress generated by the curing shrinkage of a bonding agent by chamfering. The "chamfering" in the present invention has a vastly different technical connotation than common "chamfering."

Notwithstanding the foregoing, and in the interests of advancing prosecution, a limitation is being added to claim 1 as to the *properties of the bonding agent used* in order to make clear the technical meaning of *chamfering the connecting end faces of each display panel.* Specifically, claim 1 was amended to indicated that the hardened bonding agent has a flexural modulus of

elasticity of not less than 4,000 kgf/cm^2. Applicants submit that the added limitation clearly distinguishes the claimed invention from the cited references in all respects.

As each of claims 2-6 depend from claim 1, it is submitted that at least because of their dependency from a claim that is considered distinguishable from the cited art, claims 2-6 also are considered to be distinguishable from the same cited art.

It is respectfully submitted that claims 1-6 are patentable over the cited reference(s) for the foregoing reasons.

CLAIM 44

Claim 44 stands rejected as being unpatentable over Honjo [JP 63- 167332; "Honjo(3)"] for the reasons provided on page 4 of the above referenced Office Action. Applicants respectfully traverse.

Applicants claim, claim 44, a display device that includes a first display panel having a first end surface and a second display panel having a second end surface, the second end surface being connected to the first end surface by means of a bonding agent. The first and second end surfaces have at least one edge having a circular arc shape and the bonding agent has a flexural modulus of elasticity of not more than 4,000 kgf /cm^2 after hardening.

The display device of the present invention provides a large screen display with excellent visibility which has the connecting parts of display panels being made sufficiently invisible, by preventing cracks in the connecting parts from scattering light. To achieve this, a display in accordance with the present invention has major features that *the internal stress generated by the*

curing shrinkage of a bonding agent is dispersed, and at least one edge portion of each connecting end face of the display panels is chamfered to prevent cracks from developing in connecting parts (edge portions). In other words, in the present invention, the connecting end faces of the display panels are chamfered in order to disperse the internal stress generated by the curing shrinkage of the bonding agent.

In contrast to the present invention, Honjo(3) pays no attention at all to the internal stress generated by the curing shrinkage of the bonding agent (the reference even fails to recognize problems caused by the bonding agent). Specifically, Honjo (3) describes a group of divided substrates joined by a bonding agent (e.g., see page 2, lower right column, bottom line). Honjo (3), however, does not specifically mention any of the properties of the bonding agent.

In sum, Honjo (3) does not consider at all the problems raised by the curing shrinkage of the bonding agent. That is, Honjo (3) does not address at all the internal stress caused by the curing shrinkage of the bonding agent, the cracks developing in the connecting parts of the display panels experiencing internal stress, or the annoyingly visible connecting parts of the display panels caused by cracks and resultant poor visibility. Therefore, Honjo (3) does not identify the issue that the internal stress generated by the curing shrinkage of a bonding agent needs to be dispersed to provide a large screen display with excellent visibility which has the connecting parts of display panels being made sufficiently invisible.

It appears from the above-referenced Office Action that it is being asserted that the chamfering of the connecting end faces of display panels is a common technique. However, the cited reference fails to disclose a technical concept to disperse internal stress generated by the

curing shrinkage of a bonding agent by chamfering. The "chamfering" in the present invention has a vastly different technical connotation than common "chamfering."

Notwithstanding the foregoing, and in the interests of advancing prosecution, a limitation is being added to claim 44 as to the *properties of the bonding agent used* in order to make clear the technical meaning of *chamfering the connecting end faces of each display panel.* Specifically, claim 44 was amended to indicated that the hardened bonding agent has a flexural modulus of elasticity of not less than 4,000 kgf/cm^2. Applicants submit that the added limitation clearly distinguishes the claimed invention from the cited references in all respects.

It is respectfully submitted that claim 44 is patentable over the cited reference(s) for the foregoing reasons.

CLAIMS 27-31, 34-40, 42 & 46

Claims 34-40, 42 and 46 stand rejected as being unpatentable over Nam et al. [USP 5,711,693; "Nam"] for the reasons provided on pages 4-6 of the above referenced Office Action. Claims 34-40, 42 and 46 also stand rejected as being unpatentable over Honjo(2) in view of Nam for the reasons provided on pages 6-7 of the above referenced Office Action. In addition, claims 27-31, 33-40, 42 and 46 stand rejected as being unpatentable over Honjo(1) in view of Nam for the reasons provided on pages 7-8 of the above referenced Office Action. Applicants respectfully traverse.

As indicated above, claim 35 was canceled and thus, Applicants do not believe that the within rejection need be addressed further as to this claim.

Applicant claims (claims 34, 46) a display device including plural display panels, adjoining display panels being connected with each other by means of a bonding agent, so as to have a single display screen. Also, an end surface of a connected part of each display panel has a cut surface positioning precision of 10 μm or less (claim 34, claim 46). As further provided in claim 34, the interval between the adjoining display panels is set not more than 20 μm.

The present invention was arrived at based on a finding that in order to achieve a display with good visibility regardless of the flexural modulus of elasticity of a hardened bonding agent or the variations in index of refraction of the bonding agent, each connecting end face of the display panels needs to have a cut surface positioning precision of not more than 10 μm and further that a maximum width of the connecting part should be set so as to be not more than 20 μm. In short, the present invention was arrived at in consideration of the correlation found between the adverse effects on visibility by the flexural modulus of elasticity of a hardened big agent, variations in index of refraction of the bonding agent etc. and the cut surface positioning precision of each connecting end face of the display panels.

For these reasons, the invention is ignoring a typical, simple concept that greater cut surface positioning precision is preferable. What matters to the present invention is: How much should the cut surface positioning precision be raised to remove the adverse effects on visibility by the flexural modulus of elasticity of a hardened bonding agent, variations in index of refraction of the bonding agent, etc.? This technical concept is not disclosed at all by Honjo (1), Honjo (2), or Nam.

As to Honjo (1) and Honjo(2) these references are discussed elsewhere herein. As to Nam, Nam disclose a method of fabricating a large flat panel by applying a side junction technique to thin film transistors. According to Nam, the adhesion layer 3 made of a UV curing resin (column 3, lines 51 to 52) joins the support glass 4 to the unit panel 2.

The foregoing remarks apply to distinguish each of claims 27-31, 36-40, and 42 from the applicable combination of references.

It is respectfully submitted that claims 27-31, 34, 36-40, 42 and 46 are patentable over the cited reference(s) for the foregoing reasons.

The following additional remarks shall apply to each of the above.

As provided in MPEP 2143.01, obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. *In re Fine*, 837 F. 2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F. 2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). As provided above, the references cited, alone or in combination, include no such teaching, suggestion or motivation.

Furthermore, and as provided in MPEP 2143.02, a prior art reference can be combined or modified to reject claims as obvious as long as there is a reasonable expectation of success. *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 19866). Further, and as provided in MPEP-2143, the teaching or suggestion to make the claimed combination and the reasonable suggestion of success must both be found in the prior art, not in applicant's disclosure. *In re*

Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). As can be seen from the forgoing discussion regarding the disclosures of the cited references, there is no reasonable expectation of success provided in the reference or the admitted prior art.

It is respectfully submitted that for the foregoing reasons, claims 1-7, 27-31, 34-40, 42, 44 and 46 are patentable over the cited reference(s) and satisfy the requirements of 35 U.S.C. §103. As such, these claims are allowable.

OTHER MATTERS

One of the PTO-1449s attached with the above-referenced Office Action, apparently indicates that the non-US references listed thereon were not considered because a copy of the reference was not submitted along with the corresponding Information Disclosure Statement dated December 20, 2001.

As indicated in the Information Disclosure Statement dated December 20, 2001, which was filed with the subject application, a copy of the foreign references had not been included pursuant to 37 C.F.R. §1.98(d) as each of these references had been previously submitted in connection with the prosecution of an application to which the subject application had claimed domestic priority to. However, in the interests of advancing prosecution, Applicants will shortly forward under separate cover a copy of each of references identified as Ref. No. BA-BH in the PTO-1449 that had been enclosed with the earlier filed IDS as well as another PTO-1449, that lists each of these references.

It is respectfully submitted that the subject application is in a condition for allowance. Early and favorable action is requested.

Applicants believes that additional fees are not required for consideration of the within Response. However, if for any reason a fee is required, a fee paid is inadequate or credit is owed for any excess fee paid, the Commissioner is hereby authorized and requested to charge Deposit Account No. **04-1105**.

Respectfully submitted,
Edwards & Angell, LLP

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By: _____

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